REMARKS/ARGUMENTS

Claims 1, 9, and 15 are amended. No claims are added or canceled. Thus, claims 1-24 remain pending.

Rejection under 35 U.S.C. § 112, written description

Claims 1, 9, and 15 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement regarding the limitation "wherein at least one new test path includes every routing resource of the subset under test; and at least one other resource." Support can be found as follows.

The SFI tool 115 identifies the failed resources 116 that occur most frequently in the failed test paths. *See Specification*, page 5 lines 19-20. Further testing with new test patterns 118 is then performed on the failed resources 116. *Id.*, page 5 lines 21-22. These failed resources 116 are depicted as the resource under test 222. *Id.*, Fig. 2B and page lines 27-29. The new test patterns 118 include every combination of fan-in resources 221 and fan-out resources 223 to and from the subset under test 222. *Id.*, page 5 lines 30-32.

Thus, as the entire subset 222 is included in any of the combinations, every resource of the subset 222 is included in at least one of these new test paths 118. *Id.*, Fig. 2B. In fact, in the embodiment shown, every resource of the subset 222 occurs in each new test path 118 shown in FIG. 2B.

Additionally, the fan-in resources 221 and the fan-out resources 223 are not part of the subset 222 of resources that occurred most frequently in the failed test paths. Accordingly, the specification teaches including every resource of the subset 222 that occurred most frequently and at least one other resource in a new test path.

The Office Action states asserts "each test path created as disclosed on page 6, paragraph 34 will necessarily contain a different routing resource under test due to the fact that a resource disposed after fan-out resource 223A will not be in the test path for a resource disposed after fan-out resource 223B." However, this statement misses the point that it is the subset 222 that was identified as occurring most frequently. Thus, the resources of fan-out resource 223A

or 223 contain the at least one other resource because they are not part of the subset under test 222.

The Office Action also asserts that having a test path that includes every routing resource of the subset under test would not produce any useful information since the test path is completely composed of suspected faulty resources. Again, this statement misses the point that the fan-in resources 221 and the fan-out resources 223 are not suspected of being faulty. It is the subset 222 that has the resources that failed most frequently in the failed test paths. "[I]f a particular routing resource contains a defect, that routing resource will cause failed test results in all of the test paths that are routed through it." *Id.*, page 5 lines 6-7. Thus, whether or not a defect exists in the most frequently occurring resources can be confirmed, which is useful information.

Accordingly, Applicants respectfully request withdrawal of these rejections.

Rejection under 35 U.S.C. § 112, written description

Claims 1, 9, and 15 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite regarding the limitations "wherein at least one new test path includes ... at least one other resource that was not previously coupled with that routing resource in one of the failed test paths." Specifically, the Office Action states that it is unclear which resource out of all of the resources of the subset under test "that routing resource" refers to.

These claims have been amended to recite "wherein at least one new test path includes ... at least one other resource," which clearly recites that another resource not in the subset that was identified as occurring most frequently is also included in at least one new test path.

Accordingly, Applicants respectfully request withdrawal of these rejections.

Rejection under 35 U.S.C. 102(e) and 103(a), Abramovici

Claims 1, 2, 5, 9, 12, 15, 17, 21, and 22 are rejected under 35 U.S.C. 102(e) as being anticipated by Abramovici et al (US Pat. 6,966,020; hereinafter referred to as Abramovici). Claims 3, 4, 6-8, 11, 13, 14, 16, 18-20, 23, and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Abramovici.

At page 2, the Office Action seems to admit that Abramovici does not teach or suggest at least one new test path including "every routing resource of the subset under test." There is no argument or assertion made that Abramovici actually teaches this limitation. It is only asserted that the present specification does not teach this limitation. As described above, the present specification does teach this limitation. Accordingly, it is assumed that it is the office's position that Abramovici does not teach or suggest this limitation. If this is not the case, a response to the previous arguments is requested.

Furthermore, at page 2, the Office Action asserts that the plurality of failed test patterns correspond to testing multiple faulty resources, which occur in subdivisions of wires under test 37, 38. *See Abramovici*, col. 7 line 66 to col. 8 line 2. The subdivisions are a result of separating the faulty resources. *Id.*, col. 8 line 1. Thus, a new test path only includes the resources of one subdivision. Accordingly, Abramovici does not teach or suggest "*wherein at least one new test path includes every routing resource of the subset under test*," that occur most frequently in the failed test paths, as recited in claim 1.

For at least these reasons, claim 1 is allowable over Abramovici. As claim 1 is allowable, claims 2-8 and 21-24 which depend therefrom are also allowable for at least the same rationale.

Claims 9-20

Applicants submit that independent claims 9 and 15 should be allowable for reasons mentioned with respect to claim 1. As claim 9 is allowable, dependent claims 10-14 are allowable for at least the same rationale. As claim 15 is allowable, dependent claims 16-20 are allowable for at least the same rationale.

Claims 23-24

In addition to being allowable for the same rationale as claim 1, claim 23 is allowable for additional reasons. For example, claim 23 recites

> *scanning in a first value to a failed resource;*
> *scanning in a second value to a data control point coupled with the failed resource;*
> *scanning out the value stored in the failed resource and comparing that value to the first value;*
> *transmitting a clock signal from the clock control point to the failed resource; and*
> *scanning out the value stored in the failed resource and comparing that value to the second value.*

At page 3, the Office Action points to col. 5, lines 59-66 of Abramovici for teaching boundary scan testing. This section is reproduced below.

> In operation, the controller 12 accesses the FPGA under test 10 using its boundary-scan interface in a known manner such that access is transparent to normal function of the FPGA 10. Specifically, the controller 12 uses the boundary-scan interface to configure the FPGA resources for testing, to initiate testing of the FPGA resources, and to scan out the test results.

Although it does mention scanning out test result, there is no mention of any of the steps above. If these steps are indeed known in the art, it is requested that specific references be used to show such a teaching. As it stands, the Office Action generally states that these steps occur in scan testing with no actual support. For at least this additional reason, claim 23 is allowable over Abramovici. The same argument is also applicable to claim 24.

CONCLUSION

In view of the foregoing, Applicants believe all claims now pending in this Application are in condition for allowance and an action to that end is respectfully requested.

If the Examiner believes a telephone conference would expedite prosecution of this application, please telephone the undersigned at 415-576-0200.

Respectfully submitted,

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